Online Learning Environments

Riu Hu
Univeristy of Georgia, USA

Shuyan Wang
The Univeristy of Southern Mississippi, USA

INTRODUCTION

Online learning, which was defined as a learning environment using computer communication systems for learning delivery and interaction (Harasim, 1990), has been involved into all facets of society's education. Online learning can be considered as a subset of the category of e-learning because it refers specifically to learning that is occurring via the Internet or Intranet. Online learning environment normally refers to learning via electronic communications, coursework, and/or information posted on the Web, and through other instructional activities by using Internet.

BACKGROUND

Online learning is usually considered a descendent from computer-based training. With the Internet boom from the mid 1990s to the beginning of 2000s, the concept of online learning has spread broadly. Online learning began with the use of course management system (CMS) and asynchronous Internet communication technologies such as e-mail, discussion board, and file transfer protocol (FTP) to provide communication between instructors and learners across distance (Beatty, 2002). With the technologies' advance, online learning has more various and complex applications and implementation formats. Online learning has changed to include larger repositories of (usually static) information through course Web sites with the emergence of the World Wide Web (WWW) in the early 1990s (Beatty, 2002). The later Internet communication technologies, such as the Stream Media and DSL, have made the online learning environment a complex environment which comprises both asynchronous and synchronous interactive learning methodologies as well as extensive issues and pedagogies.

Compared with traditional face-to-face learning environments, the online learning environment has many advantages such as its inherent features of anytime and anywhere, many to many communication, computer mediated, flexibility, and high-level interactivity. With synchronous technologies, instructors and learners could communicate with each other without being gathered in a same classroom or even in the same hemisphere. Teachers and learners could "see" and "talk" with each other across the distance. With asynchronous technologies, unlike the traditional classrooms, learners and instructors could collaborate and cooperate with each other online, thus ignoring the time limitation.

FORMATS OF ONLINE LEARNING ENVIRONMENT

At the beginning of online education, the education methods were text-based. With the developments of network-based software and computer technologies, more and more multimedia formats fit into the online learning environment. Students not only can read the instructional materials, but also hear the content or watch them. These formats meet the needs of the students with different learning styles. A well-designed online course should be wisely combined with the text and graphics, animations, video clips, audio files, and interactive activities. Online learning environments contain different communication formats as described below:

- **Personal e-mail and listserv:** Many online classes use mailing list to keep the class up-to-date. Some of them use a specific mail server to house the listserv for online communications. Others just simply use the function of sending mail to multiple recipients (Cc: and Bcc:) in the e-mail.

- **Online conferencing:** Online conferencing has plenty of implementation purposes in today's online education environment because it could easily establish a virtual conference with simple facilities like digital video camera, computer with Internet connection, and a microphone. By setting the video and audio communication among participants via Internet, online conference could simulate a face-to-face demonstration or a collaborating environment. Online conferencing could be implemented with professional online conference software or free tools such as Microsoft NetMeeting, Skype, MSN Messenger, and AOL Instant Messenger.
- **Chatting:** Online classes could use chatting to facilitate the synchronous communication among students and between students and the instructor. There are many online chatting formats such as text-based, audio, and video chatting. Some online chatting use single format, but others use two or more combined formats to realize the synchronous communication. Online chatting could be Web-based, telnet based, or by using software (e.g., Skype, Google Talk, Microsoft Messenger, Yahoo Messenger). Many free Instant Messengers (IM) can also support multiformat synchronous chat including video, audio, and text-based formats.
- **Discussion board (online forum):** Online classes usually use the discussion board to facilitate the asynchronous communication among the students. Both the instructor and the students could initiate a "poster" as a thread of a specific topic or problem related to the instructional materials. Everybody can reply to this thread to share his/her own opinions with others. As an asynchronous communication method, discussion boards allow students to think more elaborately before they make responses to others' posters.
- **Blogs:** Some online instructors ask their students to maintain a blog to reflect their learning in a class. As a new online application, blogs provide a place for enhancing students' self-learning and reflection.

Currently, many schools and institutions adopt CMS (Course Management System) software as the tools to conduct their courses and instructional delivery. *WebCT* and *Blackboard* are two widely used Web Course Management Systems. *Blackboard* provides a clean and efficient course template, which benefits those who have minimal or no html experiences. However, the customization options are limited for the overall look and feel. In contrast, *WebCT* gives designers more flexibility to extensively customize the desired look and feel in addition to its basic course template. WebCT merged with BlackBoard on February 28, 2005, and they will have a new product standard for the software.

Another popular CMS software is Moodle (modular object-oriented dynamic learning environment). Initiated by Martin Dougiamas in 1990s, it is an "open source" CMS software. It could be freely downloaded from Moodle's Web site and could be customized by programming staff according to the instructor and students' demands. It has a very large user base with 11,830 registered sites over 150 countries with 3,896,712 users in 366,955 courses (as of May 17, 2006, from http://moodle.org/stats/).

Except for the above three CMS software types, there are still many other CMS tools such as ANGEL, Sakai, eCollege, Claroline, ATutor, and so forth. CMS software usually supports instructors to make their course plans, manage course materials, present course information, make announcements, provide online testing and grading, and manage students' records without extra HTML knowledge requirement. They usually support both synchronous and asynchronous communication among instructors and students by threaded discussions, internal e-mail system, and chatting functions. Although CMS software has many functions in common, they do have a big difference in price and specific functions. For example, there are many free CMS software packages such as Moodle, Claroline, and ATutor. But others need to be paid, usually yearly, to keep the license. A license of a WebCT Campus Focus platform for 6000 students costs $15,000 U.S. dollars (http://www.e-teaching.org/technik/produkte/webctsteckbrief). Likewise, in their specific functions, ANGEL6.3 and BlackBoard 6 supports video streaming while other CMS software does not support video services currently. WebCT allows instructors to specify multiple paths through a course for different skill levels or job functions, which is hard to obtain in other CMS software.

CMS software could be efficiently and easily used as course management tools. However, instructors and researchers need to explore the most sufficient approaches to foster the learners' performance because these course management packages make it too easy for teachers to transfer their courses from traditional